



EU gas price cap makes it harder to source LNG to refill storage

After months of haggling, EU ministers agreed to set a price cap for natural gas though the €180/MWh threshold will make it harder to attract urgently needed LNG to refill storage in the coming spring. As a newcomer to LNG trading, Germany lacks solid trading ties in the industry and the market intervention may prompt cargoes to head elsewhere, analysts warn.

From 15 February, prices will be limited if they breach the threshold hour for three days running. At the Dutch Title Transfer Facility (TTF), Europe's most liquid gas trading hub, gas prices are currently hovering around €109/MWh – way below their peak at over €340/MWh in August this year. But analysts suggest the price may well rise to over €200/MWh after a severe winter, just at the time when EU countries need to refill their gas storages.

The German government had fought against the price cap, fearing gas shortages as LNG sellers could just ignore Europe in response to the market intervention with cargoes heading for ports where buyers are ready to pay more. "Nobody in Germany is



against low gas prices, but we know we have to be very careful not to wish for the good but to do bad," economy minister Robert Habeck said.

As of early December, Europe's gas storage levels remain above their five-year average. But if there is not enough gas available on the market this spring for utility buyers to refill their storages, the winter 2023 will become challenging.

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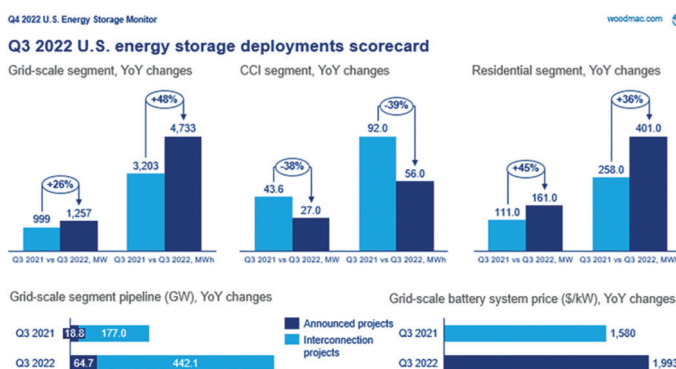
US grid-scale energy storage additions to total 65 GW through to 2026

Additions of grid-scale energy storage in the United States reached a record 4,733 MWh in the third quarter, with Wood Mackenzie anticipating almost 65 GW of new capacity between 2022 and 2026. Sustained higher power prices, state decarbonisation mandates and incentives from the US Inflation Reduction Act drive the energy storage build-out, especially in California and Texas.

Deployment of grid-scale storage in California and Texas made up 96% of total installed capacity. "California's reliance on energy storage to meet record peak demand this September shows why it's absolutely critical that policymakers and grid operators remove barriers to supply to ensure reliability," said Jason Burwen, Vice President of Energy Storage at the American Clean Power Association. The rapid increase in storage build-out increasingly hinges on the availability of transmission and timely grid

access. Residential storage had another record quarter, with 400 MWh installed, notably in California, Puerto Rico, Texas, and Hawaii. Wood

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Tight supply and rising competition will characterise LNG markets in the New Year: The International Energy Agency (IEA) estimates around 40 Bcm of new LNG import capacity will be built in the EU by the end of 2023, but only 20 Bcm of additional supply is expected to come to the market over the course of this year.

Meanwhile, China's demand could well recover from unusually low levels seen in 2022, intensifying competition. If China's LNG hunger rebounds sharply, the price cap would hamper European buyers to outbid Asia for extra cargoes.

IEA warns of supply gap

An overall supply-demand gap of 57 bcm could arise in 2023, the IEA warns, adding 30 Bcm is covered by a series of measures to improve energy efficiency, accelerate renewable deployment and the electrification of heat. A recovery in nuclear and hydropower output from decade-low levels in 2022 should also help narrow the gap, analysts suggest.

Closing the remaining deficit of 27 Bcm requires a suite of additional near-term policy actions which would require some €100 in upfront spending to help underpin in-

vestment by industry and households in heat pumps as well as wind and solar power installations combined with energy storage.

Ultimately, consumers may again have to lower their gas consumption to keep the market in balance and allow for enough gas to be put into storage before winter 2023-24. The EU will need to cap gas demand too, along with capping the price of gas, Goldman Sachs reckons, or it risks worsening the gas shortage by inadvertently encouraging demand with the price cap. ■

Siemens Energy to delist Gamesa after taking near 93% share

A successful takeover bid has given Siemens Energy a 92.72% shareholding in its wind power arm Siemens Gamesa, empowering executives to delist the company at an extraordinary general meeting in early 2023 and restructure the loss-making business. Siemens Energy last month launched a tender at €18.05 per share for Gamesa's remaining stake.

Siemens Gamesa had issued multiple profit warnings as supply chain issues hampered the ramp-up of its 5.X platform and concluded fiscal 2022 with a net loss of €940 million, which dragged down Siemens Energy's overall revenue and profitability. After full integration, the combined group is hoped to achieve cost synergies of up to €300 million within three years.

"The integration of Siemens Gamesa is an important milestone in our strategy to accompany our customers in the energy transition. The path from a fossil to a more sustainable energy world is only possible with a strong and profitable wind power industry," commented Siemens Energy CEO Christian Bruch.

Through the integration, Siemens Energy will be able to get more closely involved in

the day-to-day operations of its Spanish wind power arm, especially in terms of manufacturing, supply chain, project and customer management.

Bruch announced the delisting of Gamesa, the world's largest manufacturer of offshore wind turbines, would take place shortly after the extraordinary general meeting. Under Spanish stock market law, delisting requires an ownership level of at least 75%.

The German energy conglomerate stressed it still aims to acquire 100% of Gamesa's stock to fully integrate the com-



pany. Investors can still tender their shares to Siemens Energy at the offer price of €18.05 per share for a minimum period of one month, following the invitation to the extraordinary general meeting early next year. ■

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Mackenzie projects that this segment will climb to 2.2 GW in 2026. Industrial and commercial energy storage deployments, in contrast, underwhelm for the second quarter in a row, with only 56.6 MWh installed in the third quarter.

Brace for supply chain issues

Come 2023, installed energy storage capacity could more than double, driven by new grid-scale project announcements and increased residential and non-residential volumes in California due to the introduction of a community solar program and NEM 3.0.

But persistent supply chain issues and have pushed several projects past 2022 and into later years of the forecast. "Some developers have considered delaying projects into 2023 to receive tax credits from the Inflation Reduction Act, but this only applies to a very niche segment of projects. In general, supply chain challenges and interconnection queue backlogs will push capacity to later in the forecast, with 2024-2026 seeing increases of 9-13% per year due to this," said Vanessa Witte, senior analyst with Wood Mackenzie's energy storage team. ■

India's LNG imports fall as power generators turn to coal and solar

Record prices for imported LNG have made power generators in India idle nearly 40% of installed gas-fuelled capacity, firing up coal power units instead and accelerating the solar power build-out. India's LNG imports fell 16% between January and November, compared with the same period in 2021, according to ship-tracking data, as soaring prices halt gas-related investment.

India's LNG cargo costs in November amounted to \$1.6 billion, or 13,227 crore rupees, compared with \$1.2 billion, or 9,920 crore rupees, in November 2021, data from the ministry of petroleum and natural gas shows. LNG imports in November consequently fell by 5.9% to 1.72 million, with just 26 cargoes berthing at India's regas terminals – two less than at the same time last year.

For the first eight months of the fiscal year, LNG shipments cost \$12.8 billion versus \$8.2 billion in the same period of the previous fiscal year – a rise of over 55%. Gas prices payable under long-term import contracts are understood to have jumped to up to \$15/MMBtu from around \$5/MMBtu due to the rise in crude oil prices above \$100/bbl, while India's domestic gas supplies from the Malampaya field are rapidly depleting.

Gas power plants lay idle

Responding to record fuel prices, Indian power producers idled nearly all of their

25,000 MW installed gas-fired power generation capacity. Coal-fired power stations currently cover 72% of the country's electricity needs, while government subsidies support the addition of solar power units.

Gas use also plunged in the industrial

and fertilizer sector, which account for over 75% of the country's total demand. India's cumulative gas consumption of 40.944 Bcm for this year to November was 63% lower than the previous year, the ministry pointed out. ■



Petronet's Dahej LNG terminal

South Korea extends tax cuts on power gen fuels for four months

The South Korean government has decided to extend 15% tax reductions on key fuels for power generation for four months through to April 2023 to alleviate price pressures for industry and households. Tax adjustments for LNG and bituminous coal could be maintained until the first half of this year, while tax cuts on gasoline will be lowered.

Authorities said they hope that prolonging the tax reduction will reign in soaring prices for city gas and electricity, after public utility charges had risen by 23.1% in October and November.

Fuel tax reductions for vehicles, scheduled to expire at year-end, have also been extended albeit at a lower rate. The tax cut for gasoline will be adjusted from currently 37% to just 25% to take into account lower and stabilising prices, the ministry said, adding the 37% tax cut will stay in place for diesel and liquefied petroleum gas butane.

KEPCO strives to recuperate losses

South Korea's state utility KEPCO has been turning to coal to cut fuel costs and has hiked fourth quarter electricity rates to recuperate losses. In the first half this year, KEPCO racked up record operating loss of 14.3 trillion won – more than double its 5.9

trillion-won deficit for all of 2021.

This winter, KECOP will generate some 12.8 TWh of electricity from thermal coal this winter, lowering the need to burn more expensive regasified LNG by about 8% which will save some 1.6 trillion won (\$1.3 billion) in fuel costs. KEPCO explained that the cost of producing 1 kilowatt hour using LNG amounted to some 170 Korean won (\$0.12) compared with about 96 won (\$0.07) for coal.

In its financial plans and budget, submitted to the government, KEPCO said the shift to coal power will be temporary and applied



this year alone. Trying to recuperate some losses from its customers, KECOP announced it will increase fourth-quarter electricity rates for households by 15.9 % and hike prices for commercial customers between 16.4% und 17.4%. ■

First test for HYFLEXPOWER demonstrator completed at French CHP

Field trials and tests at HYFLEXPOWER – the world's first industrial-scale power-to-X-to-power demonstrator – have been completed successfully at an industrial heat and power plant (CHP) in France. A consortium comprising ENGIE Solutions, Siemens Energy, Centrax, Arttic and DLR want to demonstrate that green hydrogen can be a flexible means to store energy which can then power an industrial turbine.

Engie Solution operates a 12 MWe combined heat and power plant at the Smurfit Kappa Saillat paper mill in the French town Saillat-sur-Vienne. This industrial CHP is being used as a demonstration plant for hydrogen co-firing

to lower conversion costs and reduce lead times.

The hydrogen is being produced in an electrolyser near the CHP and then stored on site, for later co-firing in SGT-400 gas turbine to produce electricity and process

heat for the paper mill. The SGT-400 currently runs on a 30:70 blend of hydrogen and natural gas, but Siemens Energy wants to upgrade the turbine to full hydrogen operation over the course next year.

Next trials in summer 2023

The project,

first announced in 2020, involves significant funding by the European Commission, with two-thirds of the €15.2 million investment coming from the EU's Horizon 2020 program. The next tests-runs are scheduled for summer 2023.

Though large-scale availability of green hydrogen is still some way off, the consortium is looking beyond 2030 by trialling new technology today. Striving to store excess renewable energy in the form of green hydrogen, the HYFLEXPOWER project aims to power the paper mill by a completely carbon-free energy mix. This would save up to 65,000 tons of CO₂ per year for an SGT-400 at baseload operation.

"We are showcasing that carbon-neutral and reliable power supply is possible – even for energy-intensive industries," said Dr. Ertan Yilmaz, HYFLEXPOWER Global Director at Siemens Energy.



Installation of the SGT-400 gas turbine in Saillat-sur-Vienne

Two H2 pipelines proposed from Finland and Sweden to Germany

Six northern European TSOs have agreed to develop hydrogen pipelines from Finland through Estonia, Latvia, Lithuania and Poland to Germany. The aim is to develop at least 19.6 GW offshore wind power capacity in the Baltic Sea to produce up to 55% of the 10 million tonnes of domestic renewable hydrogen stipulated in the REPowerEU Plan.

The Prime Ministers of eight states surrounding the Baltic Sea vowed to explore joint cross-border renewable energy projects in the face of Russia's aggression in Ukraine and reduced gas deliveries, as they recognise potential for offshore wind power reaching up to 93 GW. The Baltic's massive wind power potential is meant to be used to develop a competitive, liquid, pan-European hydrogen market.

The Finish and Swedish gas TSO Gasgrid Finland and Nordion Energi have, together with industry companies OX2 and Copenhagen Infrastructure Partners, set up the Baltic Sea Hydrogen Collector (BHC) – an offshore pipeline project designed to connect mainland Finland and Sweden with Finnish Åland island and Germany by 2030. Project partners will conduct a pre-feasibility study in 2023 to decide whether to continue with the project and proceed to construction.

Hydrogen is a means to turn fluctuating wind power into a storable green energy source. The BHC would help to collect, store

and transport large amounts of green hydrogen from the Baltic region to Continental Europe where it can be used to co-fire gas power stations and decarbonise hard-to-abate industries. To that end, the EU targets to produce 10 million tons of green hydrogen within the bloc and import the same amount from abroad by 2030.

Nordic countries try to cash in on Europe's accelerated green energy transformation. "A hydrogen economy is a significant opportunity to countries around the Baltic Sea with great renewable energy resources, space, and forerunner position in development of sustainable technology solutions", says Gasgrid Finland's Sara Kärki, Head of Strategic Analysis & RDI. In future, Finland wants to play

an important role both as a producer of hydrogen and as a country exporting hydrogen.



GE and Mytilineos to build 200 MW of reserve power plant in Ireland

GE Gas Power and the Greek construction firm Mytilineos have secured an order from the Electricity Supply Board of Ireland (ESB) to build a 200 MW reserve power plant in Dublin, within ESB's existing North Wall plant. Driven by six LM2500XPRESS gas turbines, the fast-ramp unit will provide backup power for the next three winters through to 2026.

The emergency generator will not be available to the open electricity marketplace; instead, it will only be operated by ESB in the case of shortage of capacity, reaching full power within minutes. Commissioning and start-up of the 200 MW unit are scheduled before the 2023-24 winter peak.

The temporary reserve power plant in Dublin will run on gas but could also operate on blends of hydrogen fuel with relatively small modifications. The Dry Low Emissions (DLE) combustor configuration allows up to 35-50% by volume of hydrogen when blended with natural gas, GE explained.

The LM2500XPRESS gas turbine is 95% factory assembled into simplified modules for faster and easier site installation, hence it could be installed in as little as two weeks with a relatively small crew, GE pointed out. The fast-ramp turbines for this project will be manufactured in Hungary and then installed at ESB's North Wall site together with Mytilineos which whom GE

has executed over sixty projects with a combined capacity of more than 1.5 GW. ■



Trailer-mounted LM2500XPRESS gas turbine

NorthC Datacenters select Jenbacher H2-engines for backup power

Six Jenbacher hydrogen-fuelled engines have been selected by NorthC to provide emergency backup power for its newest data center, to be built in Eindhoven in the Netherlands. The engines can generate a total power output of 6 MW and will be delivered as a containerized package with view to be operational in the second half of 2023.

The Eindhoven data center will include both the hydrogen power unit and an onsite hydrogen storage to ensure the green fuel is available at all times. Operations will be monitored in real-time via INNIO's myPlant Performance solution.

Jarno Bloem, COO of NorthC Datacenters said the company selected INNIO's Jenbacher technology because of their long-term experience and proven track record with special gases, like hydrogen. The greenfield project in Eindhoven will be the world's first emergency power unit for data centres that can fully run on green fuels.

"With the hydrogen emergency backup power solution coupled with solar and wind power from electricity grid, we are able to decarbonize our complete energy supply infrastructure," he explained, referring to NorthC's ambition to be fully carbon neutral by 2030. To achieve this, the company vowed to only use renewable energy and hydrogen to power its data centres, use modular construction and make efficient use of residual heat.

But to ensure stable power supply, the six Jenbacher Type 4 engines are configured as dual-gas engines. In case of a sudden

power outage, the engines are run with the on-site stored hydrogen – but for longer grid outages, NorthC can to switch to natural gas in case there are bottlenecks in hydrogen supply. ■



Render of the datacenter in Eindhoven

NEWS NUDGES

JERA and Zenobe eye battery storage projects in the US

The American arm of the Japanese utility JERA and the British battery storage specialist Zenobē Energy have teamed up to jointly explore projects in New York State and New England. Both states have set deployment targets for batteries to provide grid stability and flexibility in the face of rising intermittent wind and solar power generation.

Shell to test CCS in Mongstad from January

Shell Catalysts & Technologies will test an amine-based solvent that is part of its CANSOLV CO2 Capture System at the Technology Centre Mongstad in Norway for five months from January 2023. Tests will verify processes and emission controls, using exhaust gas from a combined heat and power plant at Mongstad before qualifying the technology's readiness for industrial-scale projects.

PIC to service Rolling Hills power station

An LS Power affiliate has awarded PIC Group an O&M agreement for the Rolling Hills gas power station in Ohio, extending through 2025. The 870 MW plant is powered by five Siemens W501FD2 simple cycle gas turbines.

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